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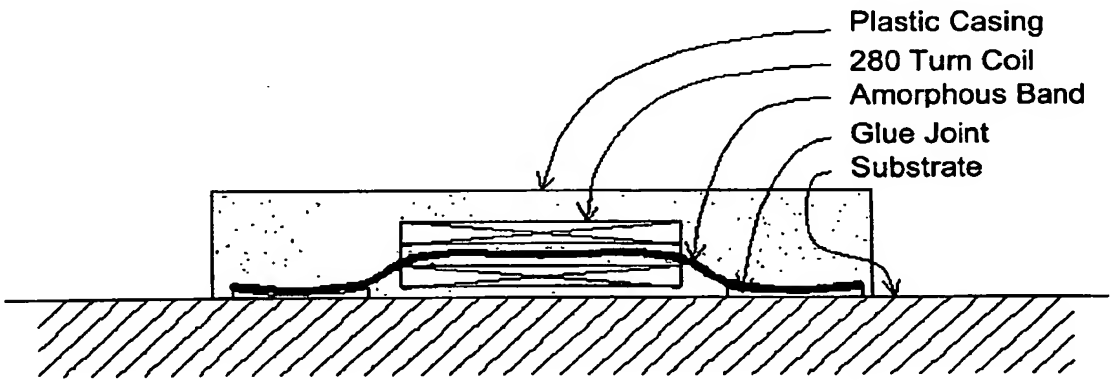
(54) Title: SENSOR



(57) Abstract: The disclosure relates to a method and an apparatus for sensing and indicating permanent state deviations via detection of temporary inner material oscillations in real time in parts of importance for hardware design and construction, within existing production equipment, e.g. machinery, and/or monitoring of previously built-up infrastructure. One or more at least approximately 20 μm thick amorphous or nanocrystalline band elements with high permeability and relatively high magnetostriction are applied to a pertinent part, the band element or elements, respectively, being at least partially surrounded by a multi-turn coil, such atomic movements (oscillations) as occur in any optional such state deviation in the part being transferred to the band element/elements. The deviation either gives rise to a clearly measurable and detectable magnetic flow change (dB/dt) in the coil in proportion to said atomic movements, or to a similarly measurable and detectable inductance change in the coil/coils.

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